illustrates an example in which a rotation angle of 90° is divided into and set to three steps in units of 30°.

[0069] Thus, when the driver rotates the steering wheel **20** at an angle in the range of 30° to 60°, the target rotation angle is set to 30° so that the vehicle may be rotated in-situ only at an angle of 30°.

[0070] As another example, FIG. **4** is a diagram for describing an operation in which the in-situ rotation of the vehicle is divided and set in units of 45° and the vehicle is rotated according to an embodiment of the present disclosure that illustrates an example in which a rotation angle of 180° is divided into and set to four steps in units of 45°.

[0071] Thus, when the driver rotates the steering wheel **20** at an angle in the range of 45° to 90°, the target rotation angle is set to 45° so that the vehicle may be rotated in-situ only at an angle of 45°.

[0072] As described above, according to embodiments of the present disclosure, the steering angle range may be set by continuously connecting a predetermined angle range.

[0073] That is, the steering angle range for each step may be set in units of an angle of 30° as shown in FIG. **3** or set in units of an angle of 45° as shown in FIG. **4**.

[0074] The rotation angles and the step illustrated in FIGS. **3** and **4** are merely examples for gradually setting the target rotation angle so that the rotation angles and the steps may be varied in various forms.

[0075] Therefore, it is possible to accurately control the rotation angle of the vehicle by rotating the vehicle by as much as a preset angle without considering a timing at which the driver would stop the vehicle. Therefore, an operation mistake of the steering wheel **20** due to dizziness during the rotation is prevented so that an accident risk may be reduced.

[0076] However, in the above described method of setting a target rotation angle, an in-situ rotation angle desired by the driver may not be accurately reflected to the rotation angle of the vehicle.

[0077] Thus, according to embodiments of the present disclosure, the calculating of the target rotation angle for each step may be configured to be operated by a separate operation.

[0078] For example, in the case of the gear shift lever type mechanism, a step rotation mode button **17** is separately provided on a side surface of an upper end of the gear shift lever so that, when the driver operates the step rotation mode button **17**, the target rotation angle may be calculated for each step.

[0079] As another example, in the case of the gear shift button type mechanism, when the in-situ rotation mode button is continuously pressed two or more times or is pressed for a predetermined time or longer, the target rotation angle may be calculated for each step.

[0080] For example, in the case of a concept in which the vehicle is rotated in four steps by as much as an angle of 30°, even when the driver tries to rotate the vehicle by as much as an angle of 100° by rotating the steering wheel **20**, the target rotation angle is 90° so that the vehicle is rotated by as much as only an angle of 90°.

[0081] Therefore, since the target rotation angle is calculated for each step only when the step rotation mode button **17** is operated, even though an intent of the driver is not accurately reflected, convenience of the in-situ rotation function of the vehicle may be improved.

[0082] In addition, as another example of the target rotation angle calculation operation, the target rotation angle may be set to be continuously varied in response to the steering angle of the steering wheel **20**.

[0083] That is, when the steering wheel **20** is rotated at an angle of 100°, the target rotation angle is also set to 100° so that the vehicle is rotated in-situ by as much as the angle of 100°.

[0084] Therefore, it is possible to accurately reflect the intent of the driver to rotate the vehicle in-situ.

[0085] Meanwhile, FIG. **7** is a step-by-step diagram illustrating rotation behaviors of the steering wheel **20** and the vehicle during the in-situ rotation process of the vehicle according to embodiments of the present disclosure.

[0086] Referring to the drawing, in the rotation control operation, when the vehicle is rotated in-situ, the steering wheel **20** may be rotated by as much as an angle at which the vehicle is rotated in a direction opposite to the rotation direction of the vehicle.

[0087] Specifically, at the same time as the vehicle is rotated, the steering wheel **20** may be rotated according to the angle at which the vehicle is rotated in the direction opposite to the rotation direction of the vehicle, and when the rotation of the vehicle is terminated, the steering wheel **20** may be restored and rotated by as much as the angle at which the vehicle is rotated in the direction opposite to the rotation direction of the vehicle so that a termination point of time of the in-situ rotation may be recognized.

[0088] That is, in a state in which the in-situ rotation mode of the vehicle is executed, when the driver rotates the steering wheel **20** in a clockwise direction, the vehicle is rotated in-situ by as much as the target rotation angle in the clockwise direction.

[0089] Thus, at the same time as the in-situ rotation of the vehicle, the steering wheel **20** is restored and rotated by as much as the angle at which the vehicle is rotated in a counterclockwise direction opposite to the rotation direction of the vehicle so that in a state in which the rotation of the vehicle is completed by as much as the target rotation angle, an absolute angle of the steering wheel **20** maintains a state before the rotation of the vehicle.

[0090] Thus, since the steering wheel **20** is restored and rotated by as much as the rotation angle of the vehicle, a steering direction before the rotation of the vehicle may be maintained and a point of time at which the in-situ rotation of the vehicle is terminated is notified to the driver. Therefore, the driver easily recognizes the point of time at which the in-situ rotation of the vehicle is terminated so that convenience of the in-situ rotation function is increased and an accident risk is reduced.

[0091] However, in the target rotation angle calculation operation according to embodiments of the present disclosure, when the target rotation angle is calculated for each step, an angle of the in-situ rotation of the vehicle may be smaller than the steering angle at which the driver steers the steering wheel **20** so that a restoring rotation of the steering wheel **20** may not be restored to a position of the steering wheel **20** immediately before the in-situ rotation of the vehicle.

[0092] Thus, according to embodiments of the present disclosure, for the in-situ rotation, the steering wheel **20** may be controlled to be restored and rotated to correspond to the steering angle of the steering wheel **20** steered by the driver.

[0093] To describe the above description with reference to FIG. **7**, in the rotation control operation, when the vehicle is rotated in-situ, the steering wheel **20** may be rotated by as